Round 3B Data Gaps
Portland Harbor RI/FS
June 14, 2007

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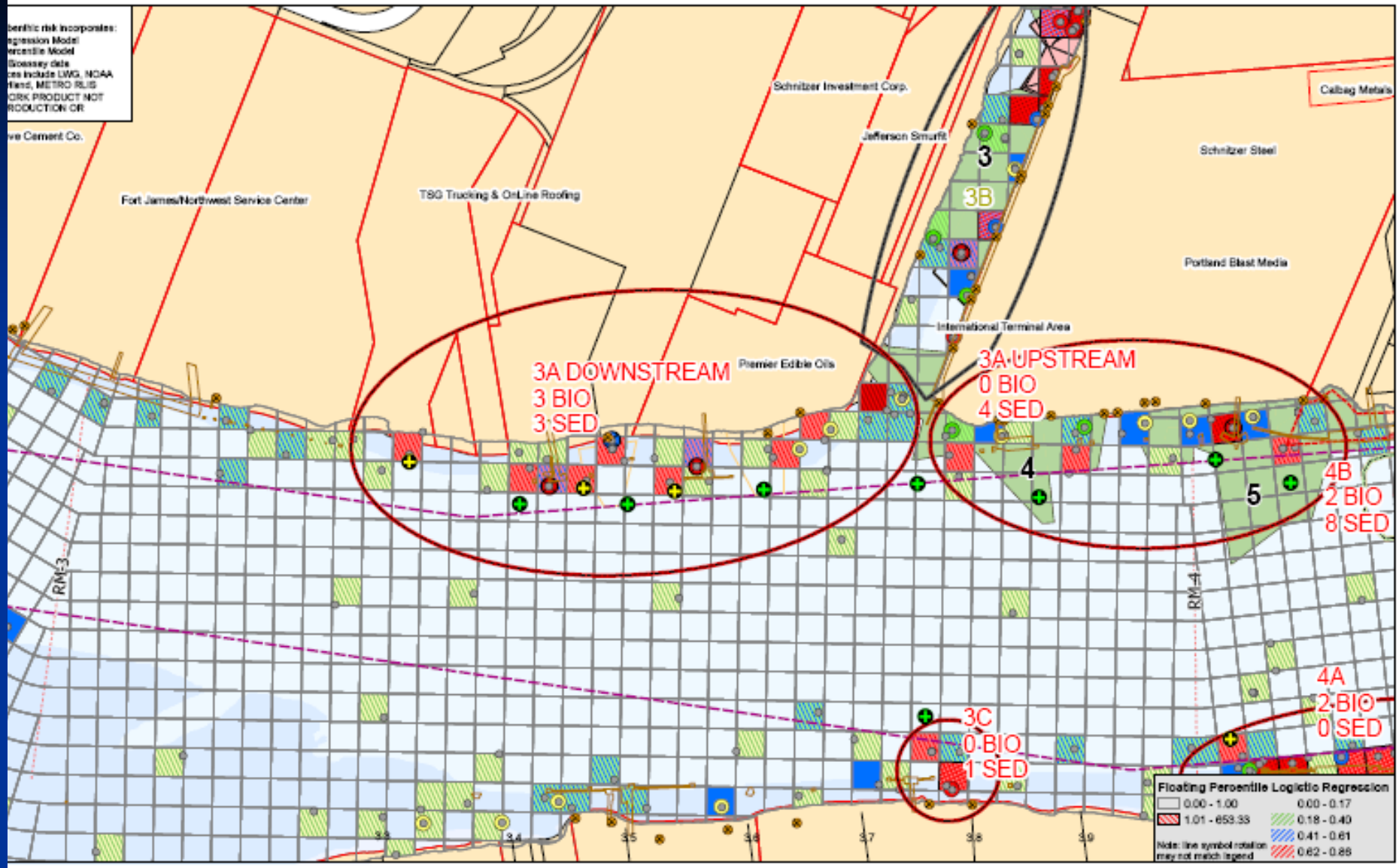
Information Considered

- Identification of Round 3 Data Gaps Memorandum, prepared by EPA, dated December 2, 2005.
- Round 3 Scope of Work, prepared by EPA, dated February 17, 2006.
- Agreements reached regarding Round 3A and Round 3B data gaps as agreed to on May 23, 2006 and documented in EPA's Issue Summary Table dated August 24, 2006 and the LWG's response to the Issue Summary Table dated October 19, 2006
- The Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report, prepared by the LWG, dated February 21, 2007.

Benthic Risk

- Evaluation based on 2 predictive models and empirical toxicity data
- Mapping exercise to identify:
  - Areas where lines of evidence disagree
  - Areas where benthic risk is not delineated
- Data Gaps:
  - 136 Sediment Chemistry Samples
  - 44 Sediment Bioassay Samples


benthic risk incorporates:
gression Model
ercentile Model
Bioassay data
es include LWG, NOAA
iend, METRO RLIS
ORK PRODUCT NOT
RODUCTION OR
ve Cement Co.
Fort James/Northwest Service Center
TSG Trucking & OnLine Roofing
Schnitzer Investment Corp.
Jefferson Smurfit
Schnitzer Steel
Calbag Metals
Portland Blast Media
International Terminal Area
Premier Edible Oils
3
3B
3A DOWNSTREAM
3 BIO
3 SED
3A UPSTREAM
0 BIO
4 SED
4
5
4B
2 BIO
8 SED
RM 3
RM 4
4A
2 BIO
0 SED
3C
0 BIO
1 SED
3.4
3.5
3.6
3.7
3.8
3.9
Floating Percentile Logistic Regression
0.00 - 1.00
1.01 - 653.33
0.00 - 0.17
0.18 - 0.40
0.41 - 0.61
0.62 - 0.88
Note: line symbol rotation may not match legend
Proposed 06/01/2007
Sample Type
Bioassay and Surface Sediment
Surface Sediment Only
LWG_FSP_Round3B_Proposed
Potential Risk Areas
Course of Action
POTENTIAL DATA GAP (RD 3B)
AREA OF INTEREST
NO ACTION
Weighted Benthic Risk
No surface sediment/toxicity data
Not Likely
Low
Medium
High
Very High
All benthic risk stations
Initial Areas of Potential Concern (LWG)
LWG Benthic IAOPC
BNTH_RECPT
0 (Other Lines)
1 (Benthic Line)
ADPC_v3_draft
Outfalls
<all other values>
City of Portland
Navigation Channel (NOAA)
Dock Structures
Bridges
CSM Taxlots 20040427
Proposed Rd 3B: River Miles 3-4
Bioassay & Surface Sediment Sampling
See NOAA tech memo for benthic risk scaling methodology
NOAA ARD 06/07/2007

Biota Tissue

- Two DQOs:
  - Food Web Model Validation Data Set
  - COI Uncertainty
- Further Discussion
  - Whole body vs. Filet
  - Upstream Tissue
  - Data needs between RM 0.5 and 2 and RM 11 and 12

Biota Tissue Summary

Species	Number	Species Rationale	DQO Addressed
Clam Tissue Composite	10	Benthic species for food web model. Key species for human health risk assessment.	Food Web Model and COI uncertainty
Crayfish Tissue Composite	9	Key species for human health risk assessment..	COI uncertainty
Sculpin Tissue Composite	17	Benthivore for food web model.	Food Web Model
Smallmouth Bass Tissue Composite	30 - 40	High trophic level predator for food web model. Key species for human health risk assessment.	Food Web Model and COI uncertainty
Black Crappie Tissue Composite	12 - 18	Water column fish for food web model. Key species for human health risk assessment.	Food Web Model and COI uncertainty
Carp Tissue Composite	12	Key species for human health risk assessment.	COI uncertainty
Total	90 - 106		

Transition Zone Water

- Data Gaps Framework
  - Criteria as a measure of protectiveness
  - Adequacy of Characterization
  - Evidence of complete migration pathway
  - Line of evidence for evaluation of in-water risk
- Data Gaps:
  - COIs detected in upland groundwater above criteria
  - Commitment to assess deep groundwater
  - Loading and FS Evaluation of Capping

Round 3B FSPs

- Sediment and Benthic Toxicity Testing
  - Addressed through benthic data evaluation
- Upriver and Multnomah Channel Sediments
  - Scope and scale generally acceptable
- Surface and Subsurface Sediments
  - Surface Sediments generally addressed through benthic data evaluation
  - Subsurface sediment to be determined
  - Some additional characterization of PBTs
  - Analyte list based on screening evaluation

Round 3A Data Evaluation

- Lamprey Ammocoete Evaluation
  - Limitations of Round 3A Tissue Data
- Upstream Sediment (RM 11 – 12)
  - Cargill (PCBs) and MGP (PAHs)
- Surface Water Sampling
  - Loading
  - Stormwater Evaluation

Other Potential Sampling

- PAH Source and Bioavailability
- Treatability Studies – based on Treatability Scoping Document
- Debris Identification – Proposed in Round 2 Report
- Riparian Soil – Upland Data Gap
- Groundwater Seeps – Upland Data Gap
- Bird Eggs – Contingent on Review of Existing USGS Data

Round 3 Data Gap Summary

Data Needs	Round	LWG Proposed Samples	Additional Data Needs
Site Wide Data Needs			
Upstream Site Boundary	3A	8 sediment cores and 3 radioisotope cores	Contingent on results of Round 3A.
Downstream Site Boundary	3A	12 grab samples and 7 sediment cores	Additional data collection unlikely.
Riparian Soil	NA	None proposed	None - upland data gap.
Multnomah Channel	3B	10 sediment samples based on bathymetric survey results	General scope and scale of LWG proposal is acceptable.
Non-AOPC Subsurface Sediments	3B	Contingent on additional data evaluation	Unknown.
Upstream - Background	3B	Approximately 20 sediment samples	General scope and scale is acceptable. Finalize sample numbers based on statistical analysis. Supplement with pulp mill site investigation data.
Upstream Surface Water	3A	Transects at RM 16 and 11	Contingent on results of Round 3A.
Upstream Biota	NA	None proposed	Upstream biota not required at this time.
HHRA			
Tissue chemistry	NA	None proposed	Biota tissue required to ensure adequate spatial coverage and full range of contaminant concentrations. Species list includes smallmouth bass (30 - 40 composites), black crappie (12 - 18 composites), carp (12 composites) clams (10 composites) and crayfish (9 composites).

Round 3 Data Gap Summary

Data Needs	Round	LWG Proposed Samples	Additional Data Needs
ERA			
Lamprey Ammocoete Tissue	3A	5 ammocoetes and 3 macrothalmia	Contingent on results of Round 3A.
Lamprey Ammocoete Toxicity	3A	Rangefinding and definitive toxicity testing	Definitive toxicity testing proceeding as part of Round 3A.
Pre-Breeding Sturgeon	3A	15 individual fish	Additional data collection unlikely.
Tissue chemistry	3B	None Proposed	Biota tissue required to ensure adequate spatial coverage and full range of contaminant concentrations. Species list includes smallmouth bass (30 - 40 composites), black crappie (12 - 18 composites), carp (12 composites), clams (10 composites), crayfish (9 composites) and sculpin (17 composites).
Sediment Bioassays	3B	12 Bioassays in upper end of study area	44 bioassays recommended to support ERA.
TPH/PAH Evaluation for Bioavailability	3B	TBD	TBD
Bird Eggs	NA	TBD	TBD based on review of USGS osprey egg data.

Round 3 Data Gap Summary

Data Needs	Round	LWG Proposed Samples	Additional Data Needs
Fate and Transport Analysis			
Sediment Trap	3A	12 Sediment Trap locations	Additional data collection unlikely.
Stormwater Loading	3A	30 Stormwater sample locations	Additional data collection unlikely as part of Portland Harbor RI/FS. Additional sampling may be conducted as part of source control efforts.
Surface Water Loading	3A	23 Surface Water Samples	TBD based on results of hybrid fate and transport model.
TZW Loading	3B	None proposed	Additional TZW sampling based on review of fate and transport and loading evaluation is required.
Food Web Model			
Surface Water	3A	23 Surface Water Samples	Additional data collection unlikely.
Tissue chemistry	3B	None Proposed	Biota tissue required to support food web model or for enhanced understanding of bioaccumulative relationships. Species list includes smallmouth bass (30 - 40 composites), black crappie (12 - 18 composites), clams (10 composites) and sculpin (17 composites).

Round 3 Data Gap Summary

Data Needs	Round	LWG Proposed Samples	Additional Data Needs
Food Web Model			
Surface Water	3A	23 Surface Water Samples	Additional data collection unlikely.
Tissue chemistry	3B	None Proposed	Biota tissue required to support food web model or for enhanced understanding of bioaccumulative relationships. Species list includes smallmouth bass (30 - 40 composites), black crappie (12 - 18 composites), clams (10 composites) and sculpin (17 composites).
Feasibility Study			
Treatability Studies	3B	TBD based on results of treatment technologies literature review	TBD
Debris Identification	3B	Side scan sonar on each AOPC	TBD
TPH/PAH Evaluation for Source ID	3B	TBD	TBD
Upstream Tissue Chemistry	NA	None proposed	Upstream biota not required at this time.

Round 3 Data Gap Summary

Data Needs	Round	LWG Proposed Samples	Additional Data Needs
Site Wide AOPC			
Sediment chemistry	3B	None proposed	Additional sediment data to ensure adequate site coverage may be required.
Tissue chemistry	3B	None proposed	Additional tissue chemistry likely required to support food web model or for enhanced understanding of bioaccumulative relationships.
Surface Water	NA	None proposed	Additional data collection unlikely.
Transition Zone Water	3B	None proposed	Additional TZW sampling based on review of fate and transport and loading evaluation is required.
AOPC Specific Data Needs			
Surface Sediment Chemistry	3B	49 surface grabs and 30 sediment cores (0 - 6" interval)	136 additional surface sediment samples required to ensure adequate spatial coverage.
Subsurface Sediment Chemistry	3B	30 sediment cores	Additional subsurface sediment likely to determine vertical extent of contamination.
Transition Zone Water	3B	None proposed	Additional TZW required at Willbridge, PEO, Rhone Poulenc and Gunderson.
Groundwater Seeps	NA	None proposed	None - upland data gap.
Surface Sediment Toxicity	3B	12 bioassays proposed.	44 additional bioassays recommended to support ERA.

Next Steps - Discussion

- Prioritize Data Gaps
  - Biota and Transition Zone Water
  - Sediments and bioassays
- Develop schedule for implementation
- Review Round 3A Data
- Develop and refine FSPs
- Implement Data Collection
- Complete Round 3B sampling

Areas for Discussion

- Hyalella growth endpoint
- RD/RA vs FS for additional data iterations – how fine a delineation is required for FS
- Bioassays to confirm model results where bioassays do not exist
- Upstream Tissue – informational vs. decisional
- Biota DQOs – how will we evaluate existing data set and any new data sets against the DQO – no stopping rule

Issues for Discussion (cont.)

- Change COI DQO to get empirical tissue data in areas of known or suspected sources and representative of sediment conditions
- Fillets vs. Whole body – what question are we trying to answer – will fillets be used to make decisions – can we determine a relationship?
- Simplification of FWM – change species list?
- Purpose if black crappie data – is it needed for FWM? Is it needed for HHRA?
- Spatial scale of ERA and HHRA – bass, crappie, others?
- Extent to which bass use both sides of river
- Validation data set – need for independent data set or is the issue size of the data set?

Issues for Discussion (cont.)

- Practicality of collecting additional tissues – where can they be collected? Individuals vs. composites? Meet targets or get what mother nature gives us?
- Site boundary – iterative nature of investigation
- Who does work at PEO, Gunderson and RPAC
- At Willbridge – is current and proposed work adequate

Issues for Discussion (cont.)

- Can we refine degree of uncertainty regarding loading and capping data needs
- Need to discus how TZW evaluation was applied in Round 2 report and implication for in-water risk evaluation – drinking water/surface water evaluation, AWQC dilution factor, etc.
- If we move forward based on screening evaluation, can we add more realism at RD/RA step?
- Willamette Cove – loading, source evaluation for PCBs
- Additional refinement of TBDs – 3A, PBTs, other open ended elements – bird eggs, lamprey data – these may end up driving our schedule